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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/471,806	12/23/1999	MARTA M RAMBAUD		7978

7590

03/15/2004

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EXAMINER

BAYARD, EMMANUEL

ART UNIT

PAPER NUMBER

2631

DATE MAILED: 03/15/2004

12

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/471,806

Applicant(s)

RAMBAUD ET AL.

Examiner

Emmanuel Bayard

Art Unit

2631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on 09 January 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,4-16,18-24 and 26-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4-16,18-24 and 26-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. This is in response to amendment filed on 1/9/0 in which claims 1, 4-16, 18-24, 26-30 are pending and claims 2-3, 17 and 25 are canceled. The applicant's amendments have been fully considered but they are moot based on the new ground of rejection. Therefore this case is made final.

#### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 4-5, 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koslov et al U.S. patent NO 6,668,029 B1 in view of Fujinami U.S. Patent No 5,974,152.

As per claim 1, Koslov et al discloses a digital adaptive equalizer for a data path communication comprising: a programmable infinite impulse filter capable (see fig.5 element 104 and col.2, lines 44-50) of being programmed to implement any of a plurality of transfer functions (see fig.5 elements 304, 306, 308, 310 and col.7, lines 55-67 and col.8, line 1-56); a multiplexer is considered as the claimed filter selector (see fig.5 element 302 and col.7, lines 59-67 and col.8, line 67- col.9, lines 1-2) to select any one of said plurality of infinite impulse response filter transfer functions for said programmable infinite impulse response filter (element 104); a variable delay filter digital filter (see fig.5 element 305 and col.8, lines 1-5, 14-18 and col.9, lines 2-8 ) for receiving an output from said first programmable filter. Note that the variable delay filter of Koslov can also be a Finite impulse response (see col5, lines 30-34).

However Koslov does not explicitly shows a FIR for receiving an output of an infinite impulse response as input.

Fujinami teaches a finite impulse response digital filter for receiving an output from an infinite impulse filter as input (see fig. 7 element 6i and col. 6, lines 31-55).

It would have been obvious to one of ordinary skill in the art to implement the teaching of Fujinami into Koslov as to set the reverberation time of the output signal of the localization filter, that is, the convolver, becomes 45 ms and also to obtain the distance feeling similar to the desired impulse response, the response time of the convolver should be as long as about 45 ms as taught by Fujinami (see col. 6, lines 53-58).

As per claims 4 and 5, the equalizer of Koslov would include second digital filter adapts a transfer function to best fit an input data as to effect variable delays, in order to accomplish resampling by estimating signal values at desired times between input samples.

As per claims 11-13, Koslov does include selection of plurality of any one of at least four sets of coefficients available to said first (see fig. 5 element 302 and col. 8, line 67- col. 9, lines 1-2).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6-10 are rejected under 35 U.S.C. 103(a) as being unpatentable Koslov et al U.S. Patent No 6,668,029 B1 in view of Fujinami U.S. Patent No 5,974,152 and in further view of Boyd et al U.S. Patent No 6,438,162 B1.

As per claim 6, Koslov and Fujinami in combination disclose all the features of the claimed invention except a T1 communication path and an E1 communication path.

Boyd et al teaches a digital filter having a T1 communication path and an E1 communication path (see abstract and col.2, line 35).

It would have been obvious to one of ordinary skill in the art to implement the aT1 communication path and an E1 communication path of Boyd into Koslov and Fujinami so minimal configuration by the user could be implemented while using high-speed applications.

As per claims 7-8, the equalizer of Boyd does include twisted pair or coaxial cable (see fig.1 element 1 and col.3, lines 21, 51,). Furthermore implementing such cable into Koslov and Fujinami would have been obvious to one skilled in the art as to provide output signal, which ideally has a waveform identical to that originally transmitted.

As per claim 9, the communication path of Koslov would include a wireless medium so that any digital coded signal could be accurately equalized over free space.

As per claim 10, Koslov teaches an analog to digital converter (see col.1, lines 20-40 and col.2, lines 34-35). Furthermore implementing such digital converter to received T1/E1 signal would have been obvious to one skilled in the art as to generate a signal having a desired sampling rate from an input signal.

*Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 14-16, 18-24 and 26-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koslov et al U.S. Patent No 6,668,029 B1 in view of Fujinami U.S. Patent No 5,974,152 and in further view of Simmons et al U.S. Patent No 6,195,414 B1.

As per claims 14 and 24, Koslov et al disclose a method of digitally equalizing a received data signal comprising: firstly filtering said received data signal using an infinite impulse response digital filter (see fig.5 element 104 and col.2, lines 43-53 and col.7, lines 53-57); adaptively adjusting an output of said infinite impulse response digital filter (see col.2, lines 43-53).

However Koslov does teach an adjustment process to accurately match an inverse response of a transmission channel used to transmit said received data signal.

Fujinami teaches an FIR as an adjustment process to accurately match an inverse response of a transmission channel used to transmit said received data signal (see fig.7 element 6i and col.6, lines 32-57).

It would have been obvious to one of ordinary skill in the art to implement the teaching of Fujinami into Koslov as to set the reverberation time of the output signal of the localization

filter, that is, the convolver, becomes 45 ms and also to obtain the distance feeling similar to the desired impulse response, the response time of the convolver should be as long as about 45 ms as taught by Fujinami (see col.6, lines 53-58).

However Koslov and Fujinami in combination do not teach filtering said received T1/E1.

Simmons teaches said received T1/E1 (see fig.3 element 340 and col.5, line 53 and col.6, line 46)).

It would have been obvious to implement the teaching of Simmons into Koslov and Fujinami as to pass digital bit stream through digital interface, which suitably interfaces to a particular source of the bit stream.

As per claim 15, the system of Koslov would include detecting a periodic pattern of said received T1/E1 as to accurately provide gain correction to the digital equalization circuit.

As per claim 16, the system of Koslov would include freezing said adaptive adjustment to accurately provide gain correction to the digital equalization circuit.

As per claims 18 and 26 Koslov does teach, a mux is considered as the claimed (selects and implements) (see fig.5 element 302) one of a plurality of transfer function coefficient available for said digital filter.

As per claim 19, it would have obvious to one skill in the art to implement the step of setting an initial value to said plurality of transfer function into Koslov and Fujinami as to enhance the system capability to accurately compensate the digitalized signal in the equalizer.

As per claims 20, 21 and 27, the system of Koslov includes a second filter (see fig.5, element 305 and col.8, line 1).

As per claim 22, the system of Koslov would include adaptively adjusting coefficients for said finite impulse response to accurately provide gain correction to the digital equalization circuit as to obtain the distance feeling similar to the desired impulse response, the response time of the convolver should be as long as about 45 ms as taught by Fujinami (see col.6, lines 53-58).

As per claim 23, the system of Koslov would include a least mean square algorithm as to provide the best mean square fit to a compensated frequency response which is flat to obtain the distance feeling similar to the desired impulse response, the response time of the convolver should be as long as about 45 ms as taught by Fujinami (see col.6, lines 53-58).

As per claims 28 and 29 the system of Koslov includes a FIR (see col.5, line 34).

As per claim 30, the system of Koslov would include a least mean square algorithm to provide the best mean square fit to a compensated frequency response which is flat to obtain the distance feeling similar to the desired impulse response, the response time of the convolver should be as long as about 45 ms as taught by Fujinami (see col.6, lines 53-58).

### *Conclusion*

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO**



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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Knutson et al U.S. Patent No 5,526,378 teaches a blind multi path correction.

Andre U.S. Patent No 5,014,232 teaches an adaptive digital filter.

Yamazaki U.S. Patent No 6,343,130 B2 teaches a stereophonic sound processing system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emmanuel Bayard whose telephone number is (703) 308-9573. The examiner can normally be reached on Monday-Thursday from 8:00 AM - 5:30 PM. The examiner can also be reached on alternate Fridays.

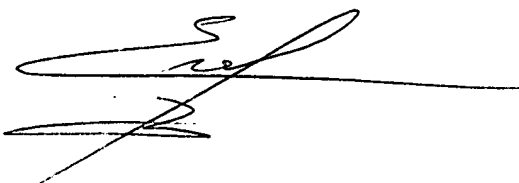
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad H. Ghayour, can be reached on (703) 306-3034. The fax phone number for this Group is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-3800.

Emmanuel Bayard

Primary Examiner

Wednesday, March 10, 2004

A handwritten signature in black ink, appearing to be 'Emmanuel Bayard', written over a horizontal line.